ACC.12
61st Annual Scientific Session & Expo
ACC-i2 with TCT innovation in intervention

E431
JACC March 27, 2012
Volume 59, Issue 13

Acute Coronary Syndromes

UPREGULATION OF PLASMA MYELOPEROXIDASE AND MICROPARTICLES ENHANCE THROMBIN GENERATION IN ACUTE CORONARY SYNDROMES

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Sunday, March 25, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Acute Coronary Syndromes: Clinical VI
Abstract Category: 6. Acute Coronary Syndromes: Basic
Presentation Number: 1173-448

Authors: *Jawed Fareed, Debra Hoppensteadt, Josephine Cunanan, Bruce Lewis, Fred Leya, Walter Jeske, Jeanine Walenga, Loyola University Medical Center, Maywood, IL, USA*

Background: Increased levels of myeloperoxidase (MPO) and micropaticles (MP)are known to be associated with a high risk and progression of acute coronary syndrome (ACS) and related disorders. Both of these mediators enhance athero-thrombogenesis. However, the association of these mediators to thrombin generation is not established. The purpose of this study was to determine the levels of MPO, MP and thrombin generation in baseline plasma samples (n=200) of patients undergoing percutaneous coronary angioplasty (PTCA).

Methods: Plasma samples from patients undergoing elective PTCA were collected at baseline. Control plasma samples were collected from 100 normal individuals. These samples were analyzed for MPO utilizing an ELISA method (Enzo Life Sciences, Plymouth Meeting, PA), functional MP using a chromogenic substrate/Annexin trapping assay (Hyphen Biomedical, Paris, France) and thrombin generation employing a tissue factor activated flourogenic assay (Technoclone, Vienna, Austria).

Results: MPO levels were markedly elevated in ACS (36.7+24.1; range 0.4-74.8 ng/ml) in comparison to normals (7.7+2.4; range 0.3-12.6 ng/ml). MP levels were also higher in the ACS group (21.6+6.1; range 3.1-32 nM) in contrast to normals (6.1+2.3; range 2.1-11.8 nM). Thrombin generation potential was significantly higher in the ACS group (668+120 nM; range 340-1160 nM) in comparison to normals (450+78 nM; range 370-760 nM). Other thrombin generation markers such as the fibrinopeptide A, prothrombin fragment 1.2 and thrombin antithrombin complex were also higher in the ACS as compared to normals. There was no correlation between MPO and thrombin generation (r2 = .23). MP levels correlated well with thrombin generation (r2=.78).

Conclusions: Simultaneous increase in the MPO and MP levels promotes thrombogenesis in the ACS patients. New anticoagulants, in particular, the oral factor Xa inhibitors such as Rivaroxiban by virtue of their strong thrombin generation inhibitory potential, may be useful in the long term treatment of ACS associated procoagulant state.